

### **REMARKS**

Claims 1-23 are all the claims pending in the application. Applicants also have added new claims 21-23 to more particularly define the invention. Applicants have amended claim 19 consistent with the Examiner's comment in order to overcome the objection. Applicants have amended the specification to address minor inadvertent errors without adding new matter, that is, clearly an alkyl group can not contain zero carbons, and thus is amended to one (1) carbon. Claims 1-20 stand rejected on prior art grounds. Applicants respectfully traverse the prior art rejections based on the following discussion.

#### **I. The Prior Art Rejections**

Claims 1, 2, 6, 8, 15 and 20 are rejected under 35 U.S.C. Section 102(b) as being anticipated by Akao, et al. ("Akao")(U.S. Patent No. 5,827,584). Claims 1, 2, 4, 6, 8, 9, 15 and 20 are rejected under 35 U.S.C. Section 102(b) as being anticipated by Igarashi. ("Igarashi")(U.S. Patent No. 6,207,226). Claims 3-8 and 10-14 are rejected under 35 U.S.C. Section 103(a) as being unpatentable over Akao in view of Brizzolara, et al. ("Brizzolara")(U.S. Patent No. 6,259,092). Claims 1 and 16-17 are rejected under 35 U.S.C. Section 103(a) as being unpatentable over Berg, et al. ("Berg")(U.S. Patent No. 4,770,728) in view of Akao.

#### **A. The Rejection Based on Akao**

Regarding claim 1, Akao fails to disclose, teach or suggest the features of independent claim 1, and related dependent claims 2, 6, 8 and 15, and similarly independent claim 18, and related dependent claim 20, including the surface is a surface absent any oxidation. (See Application, Page 2, lines 6-8; Page 3, lines 16-17; Page 8, lines 5-8; and Page 10, lines 7-9; Page 13, lines 9-14; and Figure 2).

Indeed, Figures 1-11 of Akao merely teach a conventional injection molded article for photographic photosensitive material, and a related molding method, for use in a photographic spool or a film unit with a lens. The injected molded article is formed from a non-crystalline resin composition including a non-crystalline resin, a rubbery material, a thermoplastic elastomer, an ethylene copolymer resin, a light-shielding material and other materials. The materials of the resin are processed and reacted to form the molded article. In particular, in an embodiment, an organic phosphoric ester contained in the non-crystalline resin composition is combined with a metal powder, such as, aluminum powder, and a lubricant to form a fatty acid metal salt where the surface of the metal powder is protected. Although an aluminum powder surface may be protected from degradation, this powder surface is not free of oxidation, let alone, even suggesting being oxidation free like Applicant's claimed invention. Accordingly, the Akao injected molded article is structurally distinct from Applicant's claimed invention. Thus, Akao does not disclose, teach or suggest, including the surface of the bare aluminum mass is a surface absent any oxidation. (See Office Action, Page 2, last two lines-Page 3, first two lines; and Akao, Column 3, lines 10-28; Column 30, lines 13-63; Column 33, lines 10-20; and Column 37, lines 7-40).

In contrast, as indicated briefly above, Applicant's invention is a passivation layer on an aluminum surface to form a protected aluminum mass used, for example, to improve the effectiveness of energetic materials. The invention includes a bare aluminum mass 12 with an attached layer 14 to a surface of the bare aluminum mass 12. In particular, the bare aluminum mass 12 is formed as an unprotected aluminum mass where the attached layer 14 acts as a protective layer to prevent oxidation of the surface of the bare aluminum mass 12. Thus, the attached layer 14 binds to the surface of the bare aluminum mass 12 prior to any oxidation of the surface of the bare aluminum mass 12. Accordingly, the surface of the bare aluminum mass 12 is a surface absent any oxidation unlike the

Akao structure, and related method. (See Application, Page 2, lines 6-8; Page 3, lines 16-17; Page 8, lines 5-8; and Page 10, lines 7-14; Page 11, lines 16-19; Page 13, lines 9-14; and Figure 2).

Therefore, Applicant's invention is a distinct structure compared to the conventional Akao structure. Thus, Akao does not disclose, teach or suggest including the surface is a surface absent any oxidation. (See above).

Based on the above, the Applicants traverse the assertion that Akao discloses or teaches Applicants' invention of independent claim 1, and related dependent claims 2, 6, 8 and 15, and similarly independent claim 18, and related dependent claim 20.

#### B. The Igarashi Reference

Regarding claim 1, Akao fails to disclose, teach or suggest the features of independent claim 1, and related dependent claims 2, 4, 6, 8, 9 and 15, and similarly independent claim 18, and related dependent claim 20, including the surface is a surface absent any oxidation. (See above).

Indeed, Igarashi merely teaches a conventional metallic coating finishing for painting, that is, a conventional base coat/clear coat paint formulation with metallic flakes for appearance. The metallic coating method includes surface treating aluminum flakes with an alkyl ester of phosphoric acid, and applying a metallic paint containing a paint resin composition and the treated aluminum flakes onto a substrate to form an uncured metallic-paint coated surface. The method further includes applying a clear paint onto the uncured metallic paint-coated surface. Upon curing, the aluminum flakes are apparently oriented parallel to the underlying coated surface. Although the aluminum flakes are covered by a surface material and the resultant aluminum flakes coat a substrate, neither the aluminum flakes nor the coated substrate are free of oxidation, let alone, the Igarashi method suggest forming oxidation free structures, that is, oxidation free aluminum flakes or an oxidation free coated substrate,

as compared to Applicant's claimed invention. Accordingly, the Igarashi metallic coating method, and related base coat/clear coat paint, is structurally distinct from Applicant's claimed invention. Thus, Igarashi does not disclose, teach or suggest, including the surface of the bare aluminum mass is a surface absent any oxidation. (See Office Action, Page 3, last two lines-Page 4, first three lines; and Igarashi, Column 1, lines 1-40; Column 2, lines 26-35; Column 4, lines 12-35; and Column 5, lines 3-20).

In contrast, as discussed above, Applicant's invention is a passivation layer on an aluminum surface to form a protected aluminum mass where the attached layer 14 binds to the surface of the bare aluminum mass 12, for example, as recited in new claims 21 and 22, prior to any oxidation of the surface of the bare aluminum mass 12. Accordingly, the surface of the bare aluminum mass 12 is a surface absent any oxidation unlike the Igarashi method, and related structure. (See Above).

Therefore, Applicant's invention is a distinct structure compared to the conventional Igarashi method, and related structure. Thus, Igarashi does not disclose, teach or suggest including the surface is a surface absent any oxidation. (See above).

Based on the above, the Applicants traverse the assertion that Igarashi discloses or teaches Applicants' invention of independent claim 1, and related dependent claims 2, 4, 6, 8, 9 and 15, and similarly independent claim 18, and related dependent claim 20.

#### C. The Rejection Based on Akao in view of Brizzolara

Regarding independent claim 1, and related dependent claims 3-8 and 10-14, first the references, separately, or in combination, fail to disclose, teach or suggest a reason or motivation for being combined.

In particular, Akao, as previously indicated, pertains to a conventional injection molded article

for photographic photosensitive material, and a related molding method, for use in a photographic spool or a film unit with a lens. (See Akao at Abstract; and Column 1, lines 5-35).

By contrast, Brizzolara pertains to a method of determining a thickness of a carbonaceous overlayer(s) on substrates of different material for calculating the thickness of a thin material overlayer on a solid surface, which takes into account the substrate effect of photoelectrons from an underlying substrate, and thus does not have the same aim as Akao. (See Brizzolara at Abstract; and Column 1, lines 4-14).

Nothing within Brizzolara, which relates to a thickness calculating method, suggests a conventional injection molded photographic article as disclosed in Akao.

Therefore, one of ordinary skill in the art would not have combined these references absent hindsight.

Second, even assuming that the references would have been combined, Akao, as indicated above, does not disclose, teach or suggest the features of independent claim 1, including the surface is a surface absent any oxidation. (See above).

Further, regarding claims 3 and 6-7, Applicant agrees with the Office Action that Akao also does not disclose, teach or suggest treating aluminum particle with a carboxylic acid to form a protective layer. Applicant further agrees with the Office Action that neither Akao nor Brizzolara teach that the carboxylic acid is a perfluoroalkyl acid with the claimed formulas. Applicant specifically traverses the assertion that despite the references being silent as to the mass ratio or weight percentage of the attached layer in comparison to the aluminum particles, this feature would have been obvious. It clearly is not obvious and the MPEP explicitly requires that such a teaching or suggestion be provided and identified, which the Office Action does not provide. (See Office Action, Page 5, Column 3; and Page 6, First Paragraph, lines 1-4 and Second Paragraph).

Brizzolara is also deficient.

Instead, Figures 1-4 of Brizzolara merely disclose a method for determining a thickness of carbonaceous overlayers on substrates of differing material. The method includes effectuating x-ray photoelectron spectroscopy with respect to an overlayer by measuring the intensity of an Auger electron emission peak with respect to an element in the overlayer, and measuring the intensity of a non-Auger electron emission peak with respect to the element, and evaluating the ratio of the measured intensity of the Auger electron emission peak to the measured intensity of the non-Auger electron emission peak. In particular, this method is simply focused on calculating a number for determining a thickness, whereas Applicant's claimed invention is focus on forming a structure, which includes a bare aluminum mass with a surface without any oxidation.

Indeed, Brizzolara suggests teaching the opposite, for example, copper and aluminum substrates were permitted to form air stable oxides by exposure to ambient for 30 minutes prior to immersion in the self-assembly solution. Accordingly, Brizzolara discloses oxide formation. Thus, Brizzolara suggests oxidation formation on a surface, whereas Applicant's claimed invention includes a bare aluminum mass without any oxidation. Therefore, Brizzolara does not disclose or suggest, including the surface is a surface absent any oxidation. (See Brizzolara, Column 9, line 65-Column 10, line 25; Column 13, lines 31-45; Column 17, lines 42-68; Column 19, line 59-Column 20, line 51; and Figures 1-4).

For at least the reasons outlined above, Applicant respectfully submits that neither Akao nor Brizzolara, alone or in combination, disclose, teach or suggest including, the surface is a surface absent any oxidation as recited in independent claim 1 of Applicant's invention.

For the reasons stated above, the claimed invention, and the invention as cited in independent claim 1, and related dependent claims 3-8 and 10-14, is fully patentable over the cited references.

D. The Rejection Based on Berg in view of Akao

Regarding independent claim 1, and related dependent claims 16-17, first the references, separately, or in combination, fail to disclose, teach or suggest a reason or motivation for being combined.

In particular, Berg pertains to a conventional method for coating high energy explosive crystals and forming explosive granules while minimizing wet crystal caking. (See Berg at Abstract; and Column 1, lines 5-35).

By contrast, Akao, as previously indicated, pertains to a conventional injection molded article or photographic photosensitive material, and a related molding method, which does not have the same aim as Berg. (See Above).

Nothing within Akao, which relates to a conventional injection molded photographic article, suggests a method for coating explosive crystals as disclosed in Berg. Indeed, injection molding technology has nothing to do with coatings technology.

Therefore, one of ordinary skill in the art would not have combined these references absent hindsight.

Second, even assuming that the references would have been combined, Akao, as indicated above, does not disclose, teach or suggest the features of independent claim 1, including the surface is a surface absent any oxidation. (See above).

Further, Applicant agrees with the Office Action that Berg is silent as to the protective coating including at least one carbon atom. (See Office Action, Page 7, lines 1-2).

Berg is also deficient.

In contrast, Berg merely teaches a conventional method for coating high energy explosive crystals. The method includes predrying moist explosive crystals in a fluidized bed apparatus,

bringing the predried crystals into contact with a dispersion of flegmatizing and binding agent by injection the dispersion through nozzles into the fluidized bed apparatus to coat the crystals with the dispersion, maintaining the coated crystals in a suspended state in the fluidized bed apparatus so that the crystals form granules and the dispersion water is evaporated, and discharging the formed granules from the fluidized bed apparatus. Accordingly, this process discloses coating crystals, for example, aluminum with an aqueous dispersion, but does not disclose or suggest removing an oxidation layer on the crystals, let alone, the surface is without any oxidation. Therefore, Berg does not disclose, teach or suggest, including the surface is a surface absent any oxidation as claimed by Applicant. (See Berg, Column 1, line 65-Column 2, line 18; and Column 8, lines 33-50).

For at least the reasons outlined above, Applicant respectfully submits that neither Akao nor Brizzolara, alone or in combination, disclose, teach or suggest including, the surface is a surface absent any oxidation as recited in independent claim 1 of Applicant's invention.

For the reasons stated above, the claimed invention, and the invention as cited in independent claim 1, and related dependent claims 16-17, is fully patentable over the cited references.

## II. Formal Matters and Conclusions

In view of the foregoing, Applicants submit that claims 1-23, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.




Please charge any deficiencies and credit any overpayment to Attorney's Deposit Account

Number 50-1114.

Respectfully submitted,

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